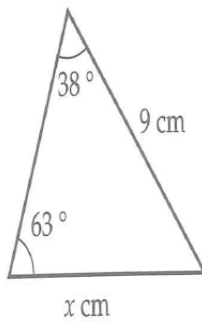
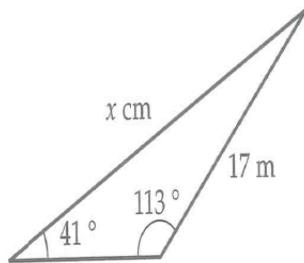


Use the sine rule $\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$ to calculate the side marked x in each triangle.

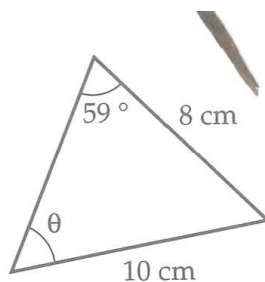
1



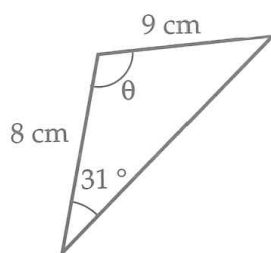
2



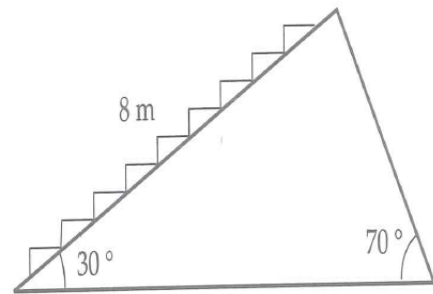
3



4



- 5 A temporary grandstand is designed so that the rows of seats extend 8 m up a slope of 30° . The top of the grandstand is supported by a brace which meets the ground at an angle of 70° .

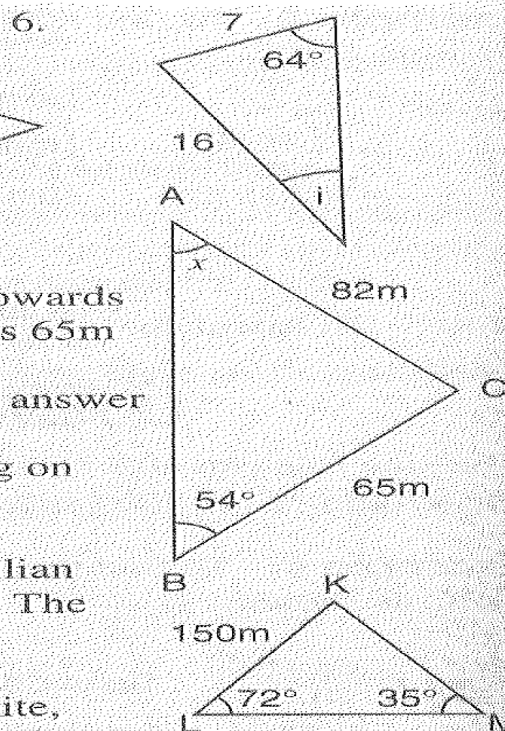
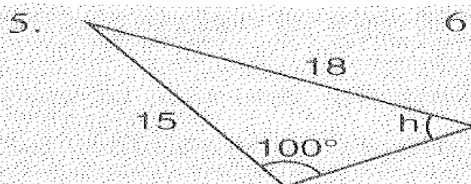
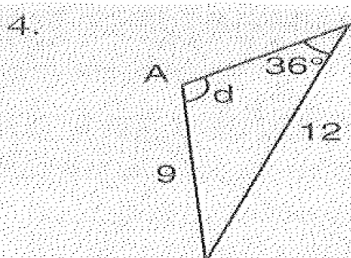
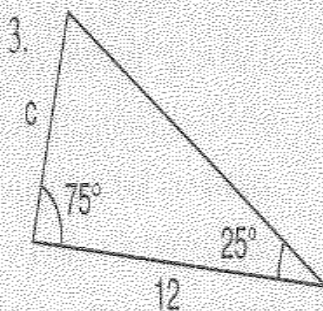
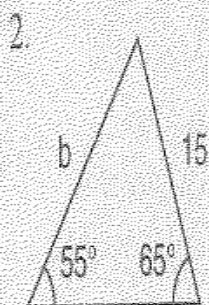
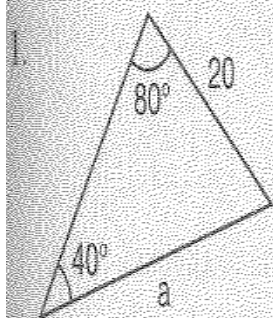


- (a) Calculate the length of the brace using the sine rule $\frac{a}{\sin A} = \frac{b}{\sin B}$.

Exercise 33A

Find the lengths of the sides and the sizes of the angles (shown with a letter) in each of the triangles:

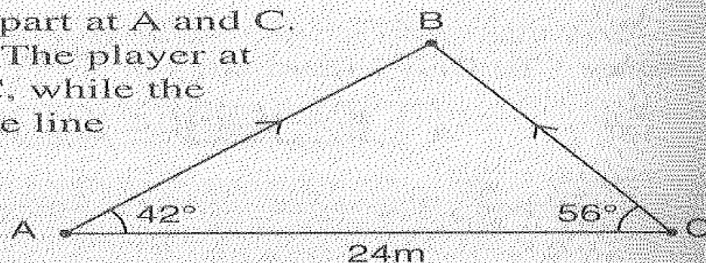
SINE RULE



7. Two orienteers, Alan and Barbara, are heading towards Control C. Alan has 82 m to run and Barbara has 65 m to run. Barbara is running on a bearing of 54° .
- Use the sine rule to calculate x . Round your answer to the nearest degree.
 - Using your answer to a, calculate the bearing on which Alan is running.

8. In an attempt to measure the width of a river, Lillian flies a kite and allows 150 m of cord to unwind. The cord makes an angle of 72° with the horizontal. On the other side of the river Malcolm measures an angle of 35° between the horizontal and the kite, which is flying directly above the line LM. Calculate the distance between L and M.

9. Two cricket players are fielding 24 m apart at A and C. Both chase after a stationary ball at B. The player at A runs at an angle of 42° to the line AC, while the player at C runs at an angle of 56° to the line AC. Calculate who runs the greater distance, and by how much (to the nearest 0.1 m).



10. The radar operator of a coastguard vessel, C, spots an illegal fishing trawler, T, due-west of the coastguard vessel. The trawler is moving at 18 kmh^{-1} on a bearing of 050° (ie 50° clockwise from north). The captain of the coastguard vessel decides to intercept the trawler in exactly one hour's time. The coastguard vessel travels at 25 kmh^{-1} . On what bearing must the coastguard vessel head? (Answer to the nearest 0.1° .)

